

THE INVENTION CLAIMED IS

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1. A system for characterizing tissue, comprising:
a generation system that generates an emission signal and a reference
signal,
a probe that directs said emission signal to said tissue,
a transmission system that transmits said emission signal to and from said
probe and that transmits said reference signal in a predetermined manner
relative to said emission signal, and
a compensation system that utilizes said reference signal to correct said
emission signal.
 2. The system for characterizing tissue of claim 1, wherein said generation
system generates an optical emission signal.
 3. The system for characterizing tissue of claim 1, wherein said generation
system generates an optical reference signal.
 4. The system for characterizing tissue of claim 1, wherein said generation
system generates an optical emission signal and an optical reference signal.
 5. The system for characterizing tissue of claim 1, wherein said
transmission system includes an optical illumination fiber.
 6. The system for characterizing tissue of claim 1, wherein said
transmission system includes an optical collection fiber.

7. The system for characterizing tissue of claim 1, wherein said transmission system includes an optical illumination fiber and an optical collection fiber.

8. The system for characterizing tissue of claim 1, wherein said transmission system includes an optical splitter.

9. The system for characterizing tissue of claim 1, wherein said compensation system reduces the effects of emission signal source fluctuations.

10. The system for characterizing tissue of claim 1, wherein said compensation system compensates for changes in transmission system efficiency.

11. The system for characterizing tissue of claim 1, wherein said compensation system reduces the effects of emission signal source fluctuations and compensates for changes in transmission system efficiency.

12. A system utilizing an optical and multisensor probe for tissue identification, comprising:

a probe for tissue identification, said probe having a distal end,

a controller,

an optical scattering and absorption spectroscopy sensor connected to said controller and to said probe and configured to deliver and receive light from said probe, and

a reference optical fiber connected to said controller and to said probe that extends toward said distal end of said probe that improves said systems accuracy

by reducing the effects of optical source fluctuations and changes in the fiber optic efficiency.

13. A method of characterizing tissue, comprising the steps of:
generating an emission signal,
generating a reference signal,
directing said emission signal to and from said tissue,
directing said reference signal in a predetermined manner relative to said emission signal, and
using said reference signal to compensate said emission signal.

14. The method of characterizing tissue of claim 13, wherein said step of using said reference signal to compensate said emission signal reduces the effects of emission signal source fluctuations.

15. The method of characterizing tissue of claim 13, wherein said step of using said reference signal to compensate said emission signal compensates for changes in transmission system efficiency.

16. The method of characterizing tissue of claim 13, wherein said step of using said reference signal to compensate said emission signal reduces the effects of emission signal source fluctuations and compensates for changes in transmission system efficiency.